SYSBPM - BP Cache Statistics

This function invokes the buffer pool cache statistics submenu. From the submenu, you can start the function for the buffer pool cache.

Note that the cache statistics function can only be executed if a buffer pool cache has been installed when initializing a global buffer pool (no cache support for local buffer pools).

To start the function

- enter code "C" in the code field of the SYSBPM Main Menu,
  or enter the direct command DISPLAY CSTATISTICS.

The BP Cache Statistics Main Menu is then displayed, from which you can select the following functions:

- General BP Cache Statistics
- BP Cache Call Statistics
- BP Cache Hash Table Statistics

General BP Cache Statistics

This function displays various addresses and statistics regarding the activity of the buffer pool cache.

You can either select this function on the BP Cache Statistics Main Menu, or invoke it by entering the direct command DISPLAY CGENERAL.

The "General BP Cache Statistics" screen is then displayed. The statistics displayed on this screen are "snapshots" of the buffer pool, which are refreshed each time you press ENTER. The following information is displayed:

Item	Explanation
Dataspace Name	Shows the name of the dataspace where the BP cache resides.
Dataspace SToken	The term SToken (for "Space Token") identifies a dataspace.
Dataspace ALET	The term ALET (for "Address List Entry Token") identifies an index for accessing the dataspace.
Dataspace size (MB)	Shows the size of the buffer pool cache in MB.
Dataspace Current state	Shows the state of the cache. The state may be "not initialized", "locked for init", "closed", "free for operation" or "undefined".
Dataspace Initialization	Shows the date and time when the buffer pool cache was initialized.
Internal buffer offsets	• Header Buffer: header of the cache, contains general cache information • Hash Buffer: contains the hash table • Directory Buffer: Shows the storage address of the BP cache directory section (relative to the beginning of the buffer pool cache). Each object stored in the buffer pool cache requires a directory entry that contains information about this object. The space for these directory entries is acquired from the buffer pool cache itself. • Text Buffer: Shows the storage address of the text buffer (relative to the beginning of the buffer pool cache). After allocating the space for all other buffers, the remaining space is divided into text records with a size of 4 KB. A Natural object can occupy one or more text records, depending on its size.
Tot. Text Records	Shows the total number of text records in the BP cache. The number of text records depends on the cache size. The text record size for the cache is 4KB.
Insert Position	Shows the index number of the text record into which the next object will be inserted. Objects will be inserted into the cache when they have to be removed from the buffer pool.
Re-use cycles	Shows the number of times the cache has been completely reused. Every time the cache is full, the cache manager re-uses the cache from the start and overwrites the object(s) from there. The objects will remain in the cache until the cache is re-used again.
Objects - Max Loaded	Shows the maximum number of objects loaded in the buffer pool cache.
Objects - Loaded	Shows the number of objects currently loaded in the buffer pool cache.

BP Cache Call Statistics

This function provides statistical information on the loading (put), retrieving (get) and deleting of objects into/from the buffer pool cache. This information also serves as a buffer pool cache performance indicator.

You can either select this function on the BP Cache Statistics Main Menu, or invoke it by entering the direct command DISPLAY CLOAD.

The "BP Cache Call Statistics" screen is then displayed. The statistics displayed on this screen are "snapshots" of the buffer pool which are refreshed each time you press ENTER. The following information is displayed:

Item	Explanation
Search calls (total)	Shows the total number of search calls issued from the buffer pool to the buffer pool cache. If an object was found, a search call results into a get call.
Get calls (from cache)	The buffer pool issues a get call to load an object from the cache into the buffer pool.
Get calls successful	An object that was requested by the buffer pool was really loaded from the cache into the buffer pool. A get call may be unsuccessful, e.g. if an object has been deleted after is was found by the search call.
Put calls successful	An object was really put from the buffer pool to the cache.
Obj. already cached	Shows the number of object which the buffer pool wanted to put to the cache, but the objects have already been in the cache, i.e. cached before.
Delete Calls	Shows the number of delete calls to the cache.
Delete Calls successful	Shows the number of successful delete calls to the cache. A delete call is unsuccessful if the object to be deleted is not in the cache.
Get/Put Rate	Shows how many "gets" have been successfully related to one successful "put". The value will be calculated by dividing the successful "gets" by the successful "puts". The higher this value, the better is the cache efficiency.
Get/Search Rate	Shows the number of searches for objects (in percent), which could successfully be served by a "get" of an object from the cache. The higher this value, the better is the cache efficiency.
Initialization	Shows the date and time the buffer pool cache was initialized.
Last re-use cycle	Shows the load date and time of the last object that has been overwritten. An object will be overwritten when its space has to be re-used. This means the load time of the object which has been in the cache longest corresponds to the "Last re-use cycle" date and time.
Last access	Shows the date and time of the last access to the cache.
Last PUT (to cache)	Shows the date and time of the last put call.
Last GET (from cache)	Shows the date and time of the last get call.
Last DELETE	Shows the date and time of the last delete call.

BP Cache Hash Table Statistics

This function displays statistics about hash table slots and collisions per slot. The statistics determine the efficiency of the hash algorithm used.

You can either select this function on the BP Cache Statistics Main Menu, or invoke it by entering the direct command DISPLAY CHASH.

The "Cache Hash Table Collisions" screen is then displayed. The statistics displayed on this screen are "snapshots" of the hash table which are refreshed every time you press ENTER. The following information is displayed:

Information	Explanation
Total number of slots	Shows the total number of hash table slots; that is, the total possible entries that link the object name with the location of the object. The number of slots i.e. the size of the hash table will be calculated internally depending on the number of text records.
Number of slots used	Shows the number of slots that have one or more entries.
Number of slots free	Shows the number of slots that have no entry.
Max. collisions per slot	Shows the maximum number of collisions of all slots. The maximum number of collisions is the longest possible search path for an object.
Collisions	The number of possible collisions. 0 means no collision or one entry. When there are more than 5 collisions, the number of collisions will be specified in ranges (e.g. 6 - 10).
Number of Slots	Shows the number of slots grouped by their number of collisions. For example, if the number of collisions is 3, the search algorithm must side step a maximum of 3 times to find an object. In addition, the percentage of these slots related to all slots used is displayed.
Totalled Number of Slots	Shows the same values as Number of Slots, but the values are summed up.

